

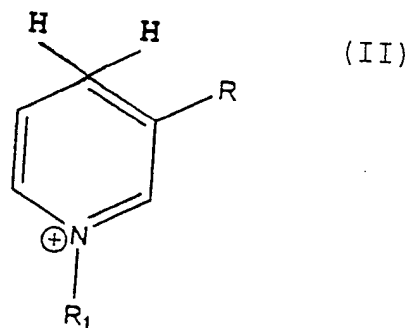
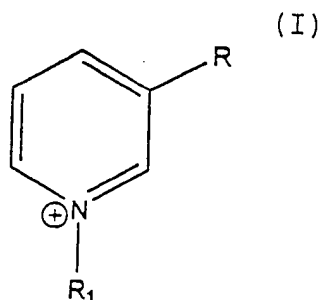
In the Claims

1-3. (canceled).

4. (Original) A device for replacement or regeneration of NAD(P)<sup>+</sup>/NAD(P)H system in oxido-reductive processes comprising

- a) a polymer matrix;
- b) a catalyst precursor;
- c) a co-factor; and
- d) an enzyme.

5. (Currently amended) The device of claim 4 wherein the co-factor is NAD<sup>+</sup>, NADP<sup>+</sup> or a biomimic compound of the formula I or II

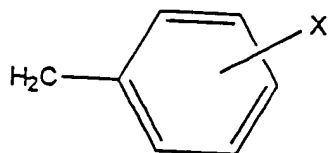


wherein R is -CN, -C(O)NH<sub>2</sub>, -C(O)NHCH<sub>3</sub>, -C(S)NH<sub>2</sub>, -C(O)CH<sub>3</sub> or

$-\text{C}(\text{O})\text{OCH}_3$ ;

wherein  $R_1$  is  $-(\text{CH}_2(\text{CH}_2\text{O})_n \text{YR}_2, \text{ribose}-\text{Y}-\text{R}_2$

or



wherein  $\text{Y}$  is  $-\text{OPOO}-$ ,  $-\text{OBO}_2-$ ,  $-\text{OSO}_2-$ ,  $\text{CH}_3\text{NH}-$ ,  $-(\text{CH}_2)_n\text{NH}-$ , adenine, or imidazole;

wherein  $R_2$  is  $\text{H}$ ,  $\text{CH}_3$ ,  $-(\text{OCH}_2\text{CH}_2)_n \text{R}_3$ ,  $-(\text{NCH}_2\text{CH}_2)_n[-] \text{R}_3$  or  $-\text{[N=P(OCH}_3)_2]_n \text{R}_3$ ;

wherein  $\text{X}$  is  $-\text{OCH}_3$ ,  $-\text{CF}_3$ ,  $-\text{O}(\text{CH}_2\text{CH}_2\text{O})_n \text{R}_3$  or  $-\text{OPOOR}_2 \text{R}_3$ ;

wherein  $R_3$  is  $\text{H}$ , or  $-\text{CH}_3$ ,  $-(\text{OCH}_2\text{CH}_2)_n$ ,  $-(\text{NCH}_2\text{CH}_2)_n$  or  $-\text{[N=P(OCH}_3)_2]_n$ ;

wherein  $n$  is 1-2000

or a salt thereof.

6. (Original) The device of claim 5 wherein the co-factor is the biomimic used for replacement of  $\text{NAD(P)}^+/\text{NAD(P)H}$  system.

7. (Original) The device of claim 6 wherein the biomimic is in combination with its 1,4 reduced derivative.

8. (Original) The device of claim 7 wherein the catalyst precursor is rhodium, zinc, nickel, cobalt, iridium or ruthenium comprising complex.

9. (Original) The device of claim 8 where the catalyst precursor is rhodium comprising complex.

10. (Original) The device of claim 9 wherein the catalyst precursor is  $[\text{Cp}^*\text{Rh}(\text{bpy})(\text{H}_2\text{O})]$  triflate salt.

11. (Original) The device of claim 8 additionally comprising a reducing agent.

12. (Original) The device of claim 11 wherein the reducing agent is formate, hydrogen, sodium borohydride, hydroquinone, sodium borohydrate, and electrode or a photon.

13. (Original) The device of claim 14 wherein the enzyme is oxidase or reductase.

14-17. (Canceled)

18. (Original) A catalyst precursor comprising rhodium, iridium, zinc, cobalt, nickel or ruthenium.